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Monthly Report - 1 October 1945

1. Volume VIII, the concluding volume of the Reports of the Wet-Cold Field Trials, was submitted to the Office of The Quartermaster General for the approval of Brig: General Georges F. Doriot. The contents of this volume were enumerated in the Monthly Report of 1 September 1945.

2. The following numbered report was submitted for approval:

Report No. 80 - 28 September 1945

Uniform, Jungle

Physiological Appraisal of Ten Types of Fabrics

Five Tables and Nine Figures

The physiological evaluation of ten types of fabrics manufactured in a standard design of jungle uniform was accomplished in the Jungle Chamber. In addition, certain physical properties were also investigated. The uniforms, divided into 3 groups as a function of thickness, were identified as follows:

a. Thick

Number

6	Cloth, Cotton, HBT
12	8.2 oz. Khaki
5	8.2 oz. Twill, Non Water Repellent Treated
11	8.2 oz. Twill, Water Repellent Treated

b. Medium

9	Poplin Warp, Nylon Filled
4	Cloth, Cotton, Poplin, 5 oz., Non Water Repellent Treated
15	Cloth, Cotton, Wind Resistant, Oxford, 6.5 oz.
13	6 oz. Shirting (Khaki)
8	Cloth, Cotton, Poplin, 5 oz., Water Repellent

c. Thin

10	Nylon Twill
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R E S T R I C T E D

The environmental conditions maintained in the Jungle Chamber were "standard" for jungle, that is, ambient temperature, 90°F., and relative humidity 85 percent. The test subjects were acclimatized to strenuous activity and to the above-noted environmental conditions for two months prior to collection of experimental observations. The physiological evaluation included: (1) sweat rate as determined gravimetrically during standard exercise on the treadmill, (2) change in rectal temperature during exercise, (3) increase in pulse rate at end of exercise, (4) skin temperature at end of exercise, (5) general comfort as judged subjectively, and (6) drag on skin of wet fabric.

On the basis of these studies, it was concluded that the following fabrics were superior:

Cloth, Cotton, Poplin, 5 oz.; Non Water Repellent Treated
Poplin Warp, Nylon Filled
Nylon Twill
Shirting, 6 oz. (Khaki)

The standard Herringbone Twill and the standard 8.2 oz. Khaki uniforms were considered inferior in this test.

The most desirable fabric for the construction of a Jungle uniform is believed to be characterized by the following physical features which affect heat load and subjective desirability:

- (1) Minimal thickness
- (2) Minimal weight
- (3) Shortest time to become wet with sweat while being worn
- (4) Maximum extent of wetting in minimum time
- (5) Minimal water retention when saturated
- (6) Softest hand
- (7) Maximum flexibility

3. In the Provisional Reports during the month, tests on the following items were discussed:

Boot, Service, Combat, Sockgear sizing
Face Protection for Sleeping Bag
Flameproof Clothing
Cap, Field, Pile, Experimental
Jacket, Fiberglas, Experimental
Navy Boot, Fiberglas, Experimental
Quamco Fabrics, Moisture Transmission and Thermal Insulation
Garment Sizes

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